

# Post-Consumer Reclaimed Asphalt Shingles in Asphalt Pavement



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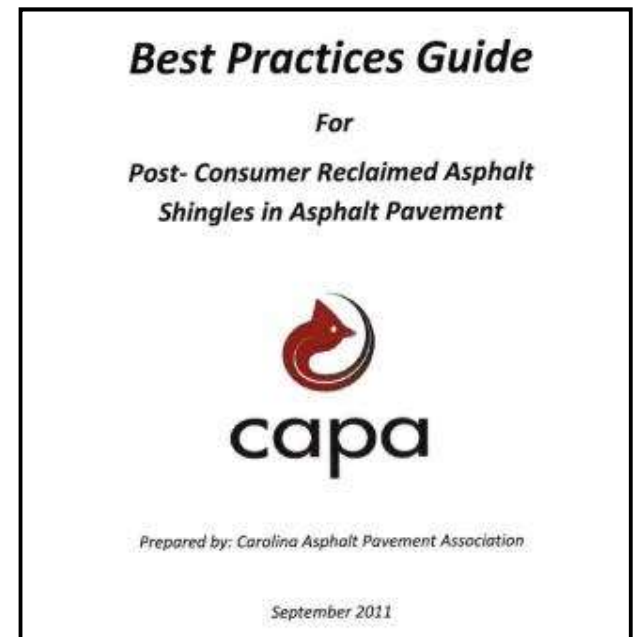
# N.C. History Highlights

- **2007:December** PRAS program started  
Greenville Paving, Pitt County Transfer  
Station Partnered
- **2008:** First mix designs created
- **2009:** Two pilot projects – resurfacing
- **2010:** Provisional project work begins
- **Dec. 2010:** N.C. and NCDOT recognized  
for use of PRAS in *Asphalt Contractor  
Magazine* (cover story)



# Best Practice Guide

- Developed to assist interested parties in use of PRAS in asphalt pavement
- General guide, published 2011
- Based upon practice of other states and NC contractors currently using the material



# Benefits of PRAS

- **Helps the environment:**  
Could save as much as 10 million tons from landfills annually across the nation
- **Saves money:** Less cost than virgin liquid
- **Workable:** Similar to using MRAS in asphalt pavement



# Items involved in using PRAS

- Safety
- Regulations
- Permits
- Asbestos Operations Plan
- Source
- Documentation
- PRAS Processing
- Stockpile Management
- Auditing



# Asbestos Operation Plan

- Asbestos use in shingles prior to 1980's
- DHHS Health Hazard Control Unit
- Asbestos Operation Plan
  - Document shingle source
  - Document shingle testing



# Asbestos Operation Plan

- Testing by certified personnel
  - State-Accredited Asbestos Inspector
  - State-Accredited Roofing Supervisor
- Visual inspection of every load
- Testing frequency – 100 tons or less
- Guidelines for Plan in the BPG



# Regulations

- NCDOT Specifications
- NCDENR Division of Waste Management
- DHHS Health Hazard Control Unit
- NCDENR Division of Air Quality





# Permitting

## NCDENR Division of Waste Management

- Landfill permit required?
- Accepting clean shingles, no landfill permit required.
- Sorting waste out of shingles being delivered, landfill permit required.



# Source of PRAS

- Shingles received at the Asphalt Plant from the roofer
- Shingles received at the Asphalt Plant from a county transfer station
- Process shingles received from a shingle recycler or processor
- Proper documentation required in all cases



# Documentation

- Source documentation from roofer (standard example in BPG)
  - Indicate roofing company
  - Signed by the roofer
  - Address of source
- NESHAP vs. Non-NESHAP
- Asbestos testing documentation
- Maintain documentation for 3 years

[Company or Facility Name]  
**SHINGLE SUPPLIER CERTIFICATION FORM**  
Supplier of Whole Tear-off Asphalt Shingles

Supplier Name: \_\_\_\_\_  
Address: \_\_\_\_\_  
Contact Name: \_\_\_\_\_  
Phone: \_\_\_\_\_

We the undersigned certify that (check appropriate boxes):

The tear-off shingles are from a NESHAP regulated facility and documentation stating that the shingles do not contain >1% asbestos is attached. (Documentation is a letter from the North Carolina accredited asbestos inspector or roofing supervisor that collected the samples with the analytical results attached.)

The tear-off shingles are from a single family home or residential building having four or fewer dwelling units that is not regulated under NESHAP.

Tear-off shingles were removed from the following addresses:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Please attach additional sheets as needed to record each building address.)

\_\_\_\_\_  
Shingle Supplier (signature) \_\_\_\_\_ Date \_\_\_\_\_

# Permitting

## NCDENR Division of Air Quality

- Must modify your asphalt plant air quality permit prior to beginning.
- Must follow source identification and asbestos testing requirements.
- Must maintain source and asbestos testing documentation for 3 years.
- Non-compliance can result in the Asphalt Plant Air Quality Permit being REVOKED!



# PRAS Processing

- Clean material, no debris
- Removal of nails
- What goes into the mix comes out of the mix
- Grinding to 100%, passing 3/8" sieve
- Follow NCDOT specifications for PRAS, mix, etc.









# MW Collection



# PRAS Processing

- *Corn flakes*

**VS.**



*coffee grounds*





# Stockpile Management

- Separate tested from untested
- Separate unprocessed from processed
- Do not climb processed stockpiles with equipment
- Blend with fine aggregate to keep stockpile manageable















# Auditing the Process

- Proper training of all personnel involved
- Internal auditing by personnel not involved in daily process
- External auditing by NCDENR, DHHS and NCDOT
- Non-compliance can result in the Asphalt Plant Air Quality Permit being **REVOKED!**



# Requirements

- Safety Plan
- Regulations
- Permits
- Asbestos Operations Plan
- Sources
- Documentation
- PRAS Processing
- Stockpile Management
- Auditing



# Safety Plan

- Facility rules
- Asbestos
- Beware debris and nails in shingles





# Conclusion

- No shortcuts
- Start properly
- Know the regulations
- Train all plant staff and roofers involved
- Quality processed material
- Follow the specifications



Thank You



# Contact Information

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